R E M A R K S

Eight new dependent claims have been added, respectively dependent on claims 9, 10, 13, and 14, reciting that the population of billets includes at least 50 billets (new claims 17, 19, 21 and 23) or more than 100 billets (new claims 18, 20, 22 and 24), thereby to provide assured coverage for important aspects of applicants' invention. The new claims are fully supported by express disclosure in the paragraph bridging pp. 2 and 3 of applicants' specification. Since this Amendment does not increase either the total number of claims (beyond 20) or the number of independent claims, no additional fee is necessary.

Claims 9 - 24, all directed to methods, are now in the application. Of these, claims 9, 10, 13 and 14 are independent; claims 17 and 18 are dependent on claim 9; claims 11, 12, 19 and 20 are dependent on claim 10; claims 21 and 22 are dependent on claim 13; and claims 15, 16, 23 and 24 are dependent on claim 14. All of claims 9 - 16 have been rejected; claims 17 - 24 are new.

It is understood that the obviousness-type double patenting rejection has been or will be withdrawn in view of the acceptance by the United States Patent and Trademark Office (on or about July 13, 2004) of the Terminal Disclaimer heretofore filed. See the Office Action dated July 14, 2004, at p. 4, last two lines.

With reference to the rejection of independent claims 9, 10, 13 and 14 under 35 U.S.C. §103(a) as unpatentable over JP 61030684 (JP '684) in view of US 3879194 (Morris et al.), it may initially be noted that each of these method claims recites, *inter alia*,

> "producing a ***population*** of aluminum alloy billets comprising performing more than one cast of metal from a body of molten metal comprising ***virgin metal and recycled scrap*** wherein said body has a composition

within a specification such that ***every billet of the population*** has a composition (in wt %) of: . . . ***Cu < 0.015*** [or, in claims 13 and 14, Cu < 0.010]."

As discussed by applicants in the prosecution of their parent application (Ser. No. 09/142,301, now U.S. patent No. 6,375,767), an important feature of the present invention is the control of Cu content to a level of less than 0.015 wt.%, preferably less than 0.010 wt.%, in every member of a population of billets of the defined aluminum alloys, cast from a molten body comprising virgin metal and recycled scrap. Thereby, there is achieved a desirable, consistent matte surface in extrusions produced from billets of such alloy, with minimal metal removal. Neither JP '684 nor Morris et al. discloses or suggests that Cu content is a result-effective variable with respect to matte finish of extrusions, nor does either reference disclose, or suggest any reason at all for, reducing Cu level to any particular limit below the value of 0.03 wt.% set forth in Morris et al. at col. 2, lines 58-62. It is therefore clear that the result of improved matte finish of extrusions with low metal removal is unexpected and unobvious from the applied references; and that the references do not motivate or make obvious a control of copper content to a level below 0.015 wt.% (preferably below 0.010 wt.%), to which all of applicants' claims are limited.

In particular, the Parson Declaration submitted in the prosecution of the aforesaid parent application explains that

"The present invention arose from the realisation that . . . undesirable variation in matteness could be avoided by controlling the Cu level below 0.015%, preferably below 0.010%, in ***all*** of the metal from cast to cast with the low Cu level. To achieve this requires

a previously unrecognised level of control over the use of recycled scrap furnace flushing and planning of alloy changes. It also imposes extra restrictions on the production process which had not previously been considered . . . ."

Further, the Parsons Declaration shows that

". . . Cu will inevitably be present in the billets not only from recycled scrap but also from the virgin metal and previous alloy types produced in the furnace. Unless steps are taken to control the composition of the metal produced, it is inevitable that Cu content of some members of a series of casts produced in the casting centre will contain more Cu than is acceptable in improved billets of the present invention."

This is demonstrated, in particular, by a comparison of the data illustrated in Figs. 1 and 2 of the Declaration.

In other words, the Parson Declaration shows that attainment of the critical Cu feature of the invention, defined in the above-quoted recital of the present independent claims requires the use of positive steps to control the Cu content, which would otherwise be such that at least some members of the population would have Cu above applicants' claimed upper limit. There is nothing in JP '684 and Morris et al., considered together, to motivate or make obvious any resort to such positive control of Cu, because (as stated above) the desirability and benefits of ensuring such uniform extremely low Cu content are not set forth or suggested in their teachings; moreover, the requisite positive control of Cu involves "increased production costs and . . . difficulties of running the casting center" (as the Parson Declaration mentions),

which it would not be obvious to incur in the absence of some motivation to do so. Hence, in the state of the art as described in the Parson Declaration, the production of the population defined in the present independent claims would not be obvious.

The Office Action, asserting that "the instant claimed Cu contents are overlapped by Cu contents of cited references," cites *In re Cofer*, 148 U.S.P.Q. 268, 271 (C.C.P.A. 1966), for the proposition that

> "Changing form, purity, or other characteristic of an old product does not render the novel form patentable ***where the difference in form, purity or characteristic was inherent in or rendered obvious by the prior art***" (emphasis added).

The *Cofer* decision itself emphasizes that "facts appearing in the record, rather than prior decisions in and of themselves, . . . must support the legal conclusion of obviousness." Here, applicants respectfully submit that the Examiner has not shown why changing the impurity Cu levels was inherent in or rendered obvious by the prior art. There is nothing in the prior art to suggest that controlling Cu would give any benefits. To the contrary, the facts appearing in the record (including applicants' specification and the aforementioned Parsons Declaration) demonstrate that the production of a population of billets, from a molten body of virgin metal and recycled scrap, wherein ***every*** billet contains less than 0.015 wt. % Cu, would ***not*** have been inherent in or obvious from the prior art as represented by JP '684 and Morris et al., however combined.

Even if the asserted "overlapping ranges" of the cited art could be deemed to render the subject matter of the present claims *prima facie* obvious therefrom, it is well settled that *prima facie*

obviousness may be overcome by a showing of unexpected results; and in the case of the method invention defined by the present claims, as stated above, the attainment of improved matte finish of extrusions with low metal removal, as a result of the critical control of Cu content in every billet of the population, is unexpected and unobvious from the applied references.

Consequently, it is further submitted that the recital quoted above distinguishes each of independent method claims 9, 10, 13 and 14 clearly and patentably over any combination of JP '684 and Morris et al. The other claims in the application distinguish in like manner over these references by virtue of their dependence on one or another of the independent claims.

What has been said regarding the rejection on JP '684 in view of Morris et al. applies equally to the rejection of the claims under §103(a) as unpatentable over GB 1484595 (GB '595).[1] The only quantification of Cu content in the portions of GB '595 relied on in the Office Action is found at p. 4, lines 8-13, which indicates that the amount of Cu should be "as small as possible, preferably less than 0.05% by weight." Example 1 of GB '595 merely mentions the unquantified presence of "other impurities." The preferred upper limit of Cu in GB '595 is thus even higher than that of Morris et al., and the meaning of "as small as possible" is defined by this upper limit.

Assuming *arguendo* that, as the Examiner asserts, it is obvious for economic reasons to use recycled scrap with virgin metal and to "monitor and adjust the chemistry of a molten metal before casting," nevertheless there is nothing in GB '595 to suggest that if a melt of recycled scrap and virgin metal were used, the chemistry should be monitored and adjusted in such a way

[1]The alternative anticipation rejection under §102(b) is untenable for the reason that GB '595 does not disclose, either expressly or inherently, a population of billets, cast from a body of virgin metal and recycled scrap, every one of which contains <0.015 wt.% Cu.

that all billets in the cast population contain less than 0.015 wt.% Cu. There is no teaching in GB '595 of the great advantages of doing so in that it results in an alloy allowing an increase in matteness.

Hence, applicants submit, the claims distinguish over GB '595 in the same way as over JP '684 and Morris et al.

Newly added dependent claims 17 - 24 are submitted to present an additional feature of patentable distinction over the applied references. In light of the data on pp. 11-12 of the specification, and the discussion in the aforementioned Parson Declaration, it is apparent that "a body of molten metal comprising virgin metal and recycled scrap" would not produce a population of at least 50 (or more than 100) billets resulting from more than one cast, wherein every billet has less than 0.015 wt% Cu, in the absence of positive and deliberate intervention. One following the teaching of the references would have no motivation to select the upper Cu limit for all billets so low; and even if such a limit were *prima facie* obvious, Figs. 8 and 9 (in particular) of the present application clearly demonstrate an unexpected new result.

For the foregoing reasons, it is believed that this application is now in condition for allowance. Favorable action thereon is accordingly courteously requested.

Respectfully,

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I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

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